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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,253	08/26/2003	Yasunori Ando	116942	2080

7590 12/05/2006  
Oliff & Berridge, PLC  
Suite 500  
277 South Washington Street  
Alexandria, VA 22314

EXAMINER

HOFFMANN, JOHN M

ART UNIT PAPER NUMBER

1731

DATE MAILED: 12/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/647,253

Applicant(s)

ANDO ET AL.

Examiner

John Hoffmann

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 14, 15, 17 and 18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14-15, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/10/2006 has been entered.

### ***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 14-15 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese publication 1-188479 (KATO) in view of Schonfelder 5746969 and Chia 5298470.

See the prior Office actions for the manner in which Kato and Schonfelder were previously applied. Claim 14 has been amended to require that the molar ratio ranges from about 0.8 to 1.2. In light of the last 5 lines of page 9 of the specification examiner is interpreting "ratio" to be substantially the same thing as "fraction". That is, a ratio between about 0.8:1 and (exactly) 1.2:1.

Chai discloses that a 1:1 ratio is known and are 'quite stable' (col. 6, lines 60-68) when used as a sintering aid for silicon nitride. Also, it is indicated that the amount of additives are determined based on the desired properties. Thus it would have been obvious to use the 1:1 ratio in the Kato invention because such results in a product

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which is 'quite stable'. Alternative, it would have been obvious to perform routine experimentation to determine optimal amounts of the sintering aids – based on the desired properties for the final product. See also col. 1, lines 43-50 of Chai which discloses the oxides are "typical".

Claims 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese publication 1-188479, Schonfelder 5746969 and Chia 5298470 as discussed above, and further in view of Kingery, "Introduction to Ceramics" 2nd ed page 9.

From page 9, lines 5-10 of Kingery, particle size is one of the "most critical factors" in ceramics processing. It would have been obvious to perform routine experimentation to determine the optimal particle size for the yttria, such being a critical result-effective variable.

### ***Response to Arguments***

Applicant's arguments filed 10/10/2006 have been fully considered but they are not persuasive.

It is argued that Kato and Schonfelder do not teach the "about 0.8" to "1.2" ratio. This argument is moot in light of the new grounds of rejection. It is also noted that there is no criticality to the claimed range – see page 7, lines 13-15 of the 10/10/06 response where applicant admits there is no result-effective variable being claimed.

As to the argument that one would not look to a reference which makes dense materials – for guidance to make porous materials. Applicant has given no support

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(either evidence or argument) to support this assertion. The reference are directed to sintering – it does not seem reasonable to conclude that the oxides assist in sintering dense ceramics, but not porous ceramics. Examiner notes Tsuzuki 5394015 discloses that silicon nitride is difficult to sinter (col. 1, lines 29-34) – to the point of being impractical if aids are not used. Examiner can find no reason to agree with applicant's unsupported assertion.

Applicant further argues the amounts are not result-effective variables. Newly applied Chia cures this deficiency (see col. 7, lines 6-8).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Hoffmann whose telephone number is (571) 272 1191. The examiner can normally be reached on Monday through Friday, 7:00- 3:30.

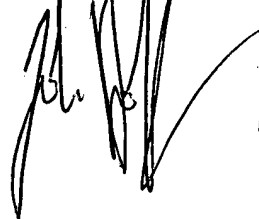
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John Hoffmann  
Primary Examiner  
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jmh



11-24-06